WHAT IS CLAIMED IS:

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1. A method of treating an individual having a neuroectodermal tumor, comprising the step of:

5   administering a pharmaceutical composition comprising a pharmaceutically effective dose of a neuroectodermal tumor specific ligand fused to a cytotoxic moiety and a pharmaceutically acceptable carrier.

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2. The method of claim 1, wherein the neuroectodermal tumor is a tumor type treated is selected from the group consisting of ependymomas, medulloblastomas, neuroblastomas, gangliomas, pheochromocytomas, melanomas, peripheral primitive

15 neuroectodermal tumors, small cell carcinoma of the lung, Ewing's sarcoma, and metastatic tumors in the brain.

3. The method of claim 1, wherein the

20 neuroectodermal tumor specific ligand is chlorotoxin.

4. The method of claim 3, wherein said chlorotoxin is selected from the group consisting of native chlorotoxin, synthetic chlorotoxin and recombinant chlorotoxin.

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5. The method of claim 1, wherein said cytotoxic moieties is selected from the group consisting of gelonin, ricin, saponin, pseudonomas exotoxin, pokeweed antiviral protein, diphtheria toxin, and complement proteins.

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6. The method of claim 1, wherein the neuroectodermal tumor specific ligand is an antibody against the chlorotoxin receptor.

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7. A method of differentiating neuroectodermal tumor-derived neoplastic tumor tissue from non-neoplastic tissue, comprising the steps of:

contacting a tissue of interest with labeled chlorotoxin which binds specifically to neuroectodermal tumor neoplastic tumor tissue; and

measuring the binding of the labeled chlorotoxin, wherein

5   an elevated level of binding, relative to normal tissue, indicates that the tissue is neoplastic.

8.   The method of claim 7, wherein said chlorotoxin is

10   labeled with a detection moiety.

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9.   The method of claim 8, wherein said detection moiety is selected from the group consisting of a fluroschrome, biotin,

15   a colorimetric agent linked to an enzyme substrate.

10.   The method of claim 8, wherein said labeled chlorotoxin binding is determined by a method selected from the

20   group consisting of fluorescent microscopy, ELIZA and fluorescent activated cell sorting.

11.   The method of claim 7, wherein said labeled chlorotoxin is radiolabeled.

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12.   The method of claim 11, wherein said radiolabeled chlorotoxin is selected from the group consisting of ^{131}I-chlorotoxin and ^{125}I-chlorotoxin.

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13.   The method of claim 7, wherein the level of radiolabeled chlorotoxin binding affinity indicative of neoplastic tissue is from about 5 nanomolar to about 5 micromolar.

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14.   The method of claim 13, wherein said labeled chlorotoxin binding is determined using positron emission tomography scanning.

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